

# DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## AIR QUALITY CONTROL CONSTRUCTION PERMIT

Permit No.: 318CP01

Preliminary - October 19, 2004

The Department of Environmental Conservation (Department), under the authority of AS 46.03, AS 46.14, AS 46.40, 6 AAC 50, 18 AAC 15, and 18 AAC 50.315, issues an Air Quality Control Construction Permit to:

<b>Owner and Operator:</b>	<b>U.S. Air Force</b> P.O. Box 40013 Clear AFS, AK 99704-0013
<b>Permittee:</b>	Same as Owner and Operator
<b>Stationary Source:</b>	<b>Clear Air Force Station</b>
<b>Location:</b>	Latitude: 64° 17' 26" North; Longitude 149° 10' 49" West
<b>Physical Address:</b>	U.S. Air Force P.O. Box 40013 Clear AFS, AK 99704-0013
<b>Permit Contact:</b>	Gary Breen (907) 585-6341

The Department authorizes U.S. Air Force to change from a Hazardous Air Pollutant (HAP) major source classification to a HAP synthetic minor.

This permit satisfies the obligation of the owner and operator to obtain a construction permit as set out in AS 46.14.130. As required by AS 46.14.120, the Permittee shall comply with the terms and conditions of this construction permit.

This stationary source is classified under 18 AAC 50.300(b)(1)(A) & (B), 18 AAC 50.300(c)(1) & (c)(2)(A), and 18 AAC 50.300(f) for construction permits.

This stationary source is classified under 18 AAC 50.325(b)(1) & (2) and 18 AAC 50.325(c) for operating permits.

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John F. Kuterbach, Manager  
Air Permits Program

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## List of Abbreviations Used in this Permit

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AS	Alaska Statutes
ASTM	American Society of Testing and Materials
bhp	brake horsepower or boiler horsepower <sup>1</sup>
CEMS	Continuous Emission Monitoring System
C.F.R.	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
dscf	Dry standard cubic feet
EPA	US Environmental Protection Agency
gr./dscf	grain per dry standard cubic feet (1 pound = 7000 grains)
GPH	gallons per hour
HHV	Higher heating value
ID	Source Identification Number
kW	kilowatts
MACT	Maximum Achievable Control Technology
Mlb	thousand pounds
MMBtu	Million British Thermal Units
NAICS	North American Industry Classification System
NESHAPs	Federal National Emission Standards for Hazardous Air Pollutants [as defined in 40 CFR 61]
NSPS	Federal New Source Performance Standards [as defined in 40 CFR 60]
ppm	Parts per million
ppmv	Parts per million volume
PS	Performance specification
PSD	Prevention of Significant Deterioration
RM	Reference Method
SIC	Standard Industrial Classification
TPH	Tons per hour
TPY	Tons per year
Wt%	weight percent

## Pollutants

CO	Carbon Monoxide
HAPS	Hazardous Air Pollutants [as defined in AS 46.14.990(14)]
H <sub>2</sub> S	Hydrogen Sulfide
NO <sub>x</sub>	Oxides of Nitrogen
PM-10	Particulate Matter [as defined in 18 AAC 50.990(70)]
SO <sub>2</sub>	Sulfur Dioxide
VOC	Volatile Organic Compound [as defined in 18 AAC 50.990(103)]

## Weight

Ton	2000 lbs
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<sup>1</sup> 1 boiler horsepower = 33,472 Btu-fuel per hp-hr divided by the boiler's efficiency. Approximately 7000 Btu-fuel per bhp-hr is required for an average diesel IC engines.

## **Section 1 - Source Inventory and Description**

- 1. Owner Requested Limits.** The Permittee has requested operational limits on the Emission Unit IDs 1 through 3, as listed in Table 1, at this stationary source in accordance with the terms and condition of this permit and the construction permit application.

**Table 1 - Construction Permit Source Inventory**

<b>Emission Unit ID</b>	<b>Source Name</b>	<b>Source Description</b>	<b>Fuel</b>	<b>Maximum Nominal Rating/Size</b>
1	Power Plant #1	Coal-fired boiler #1	Coal	70,000 lb steam
2	Power Plant #2	Coal-fired boiler #2	Coal	70,000 lb steam
3	Power Plant #3	Coal-fired boiler #3	Coal	70,000 lb steam

Note: The units listed in Table 1 have specific monitoring, recordkeeping, or reporting conditions in this construction permit. Except as otherwise indicated in this permit, the source description and rating are given for identification purposes only. The stationary source equipment inventory prior to this project is listed in Operating Permit No. 318TVP01 Revision 2.

## **Section 2 - Owner Requested Limits to Avoid Classification as HAP Major under 18 AAC 50.300(f)**

2. **Limit to Avoid HAP-Major Classification.** The Permittee shall limit hydrogen chloride and hydrogen fluoride<sup>2</sup> emissions to no greater than 10 tons for each pollutant per 12 twelve month rolling period by limiting the coal burned for Emission Units 1, 2, and 3 to no greater more than 135,000 tons per 12 month rolling period.
3. **Monitoring:** Monitor compliance with Condition 2 by:
  - 3.1 Coal Monitoring: Record the total weight in tons of coal burned for each of Emission Units 1, 2, and 3 per 12 monthly rolling period by:
    - a. Obtain a statement from the coal supplier certifying the total coal weight of for each shipment delivered to the stationary source; and
    - b. Obtain a statement from the coal supplier certifying the coal analysis results for each shipment delivered to the stationary source. The analysis shall include the following information:
      - (i) the hydrogen chloride and hydrogen fluoride in parts per million of the coal;
      - (ii) the method of analysis;
      - (iii) the method of sampling of the coal; and
      - (iv) a statement that the analysis was representative of the coal shipped.
    - c. If a statement from the coal supplier, as required according to Condition 3.1a, is not available, the Permittee shall calculate the total coal weight burned for that period (e.g., starting at the date of delivery until the date of the delivery of the next shipment). The total coal weight burned is calculated by using the maximum design fire rate for the emission unit for each hour of operation.
    - d. If a statement from the coal supplier, as required according Condition 3.1b, is not available from the coal supplier, the Permittee shall analyze a representative sample of the coal to determine the hydrogen chloride using ASTM Method 4208 and hydrogen fluoride using ASTM Method D3761, or another appropriate method approved in writing by the Department.

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<sup>2</sup> A stationary source is classified as a “hazardous air contaminant facility” if the facility emits or has the potential to emit 10 tpy or more of any single hazardous air contaminant or 25 tpy or more in the aggregate of two or more hazardous air contaminants. For this stationary source Hydrogen Fluoride is the highest and Hydrogen Chloride is the second highest hazardous air pollutant emitted.

- e. Calculate and record the 12 month rolling total coal burned of Emission Units 1, 2, and 3 by summing the delivered coal weight statement(s) as set out in Conditions 3.1a and 3.1c.

- 3.2 **HAP Monitoring:** Calculate and record the 12 month rolling total hydrogen chloride and hydrogen fluoride emissions from Emission Units 1, 2, and 3 by multiplying the pollutant specific emission rate <sup>3</sup> as listed below by the total coal consumption (tons) calculated according to Conditions 3.1e:

$$\text{Formula: } E = (F \times C)/2,000$$

Where:  $E$  = Emission rate for HCl or HF in tons/year<sup>4</sup>

$F$  = total coal consumption in tons per 12 month rolling period

$C$  = Emission factor for HCl of 0.033 lb/ton coal; or emission Factor for HF 0.113 lb/ton coal<sup>5</sup>

**4. Reporting:** Report compliance with Condition 2 by:

- 4.1 Report the total weight of coal burned per 12 month rolling period for Emission Units 1, 2, and 3 in accordance with Condition 46 of Operating Permit No. 318TVP01 Revision 2.
- 4.2 Report the total weight of coal burned per 12 month rolling period for Emission Units 1, 2, and 3 when the total exceeds 135,000 tons per 12 month rolling period in accordance with Condition 45 of Operating Permit No. 318TVP01 Revision 2.
- 4.3 Report the 12 month rolling hydrogen chloride and hydrogen fluoride emissions for Emission Units 1, 2, and 3 in accordance with Condition 46 of Operating Permit No. 318TVP01 Revision 2.
- 4.4 Report the 12 month rolling hydrogen chloride and hydrogen fluoride emissions when either exceeds 10 tons per 12 month rolling period in accordance with Condition 45 of Operating Permit No. 318TVP01 Revision 2.

**5. Source Testing:** Conduct source tests for both hydrogen chloride and hydrogen fluoride emissions on one representative boiler (i.e., Emission Unit 1, 2, or 3):

- 5.1 Within 60 days after exceeding 5 tons per 12-month rolling period for either hydrogen chloride or hydrogen fluoride if a test has not been conducted within the past 12 months; or

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<sup>3</sup> The initial specific pollutant emission rate of hydrogen chloride (HCl) and hydrogen fluoride (HF) was developed from the approved source test results from the source test at Clear Base CHPP on March 2004.

<sup>4</sup> A year is a 12 month rolling period. One ton equals 2,000 pounds.

<sup>5</sup> Emission factors will be revised upon Department approval of source testing results per Condition 5.

5.2 Once every 60 months.

5.3 During each test, comply with the following:

- a. conduct tests at no less than 4 loads within the normal operating range of the unit;
- b. determine the coal heat content (Btu/lb) of the coal used during the testing;
- c. during tests, monitor and record the emission unit steam production to determine the boiler load and weight of coal burned;
- d. conduct tests using 40 CFR 60 Appendix A Methods 26a, or other appropriate method approved by the Department;
- e. comply with Section 9, *General Source Testing and Monitoring Requirements*, of Operating Permit No. 318TVP01 Revision 2; and
- f. determine the fuel specific emission factors for hydrogen chloride and hydrogen fluoride for each load (lb/ton coal).

5.4 Upon the Department's approval of the source tests, use the worst-case emission factors determined in Condition 5.3f to calculate hydrogen chloride and hydrogen fluoride emissions as set out by Condition 3.2 retroactive to the date of the source test.

### ***Section 3 - Permit Documentation***

April 14, 2004	Letter from Trent A. Pickering, USAF, to Jim Baumgartner, ADEC, with an application for an Air Quality Control Construction Permit.
July 26, 2004	Email from John Basile, USAF, to William Ashton, ADEC, with additional emissions information.
July 27, 2004	Email from John Basile, USAF, to William Ashton, ADEC, with additional emissions information.
July 27, 2004	Email from John Basile, USAF, to William Ashton, ADEC, with additional emissions information.